

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
9 September 2005 (09.09.2005)

PCT

(10) International Publication Number  
**WO 2005/083792 A3**

(51) International Patent Classification<sup>7</sup>: **H01L 29/12**,  
B01J 13/00

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(21) International Application Number:  
PCT/EP2005/050840

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(22) International Filing Date: 28 February 2005 (28.02.2005)

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0404442.6 27 February 2004 (27.02.2004) GB

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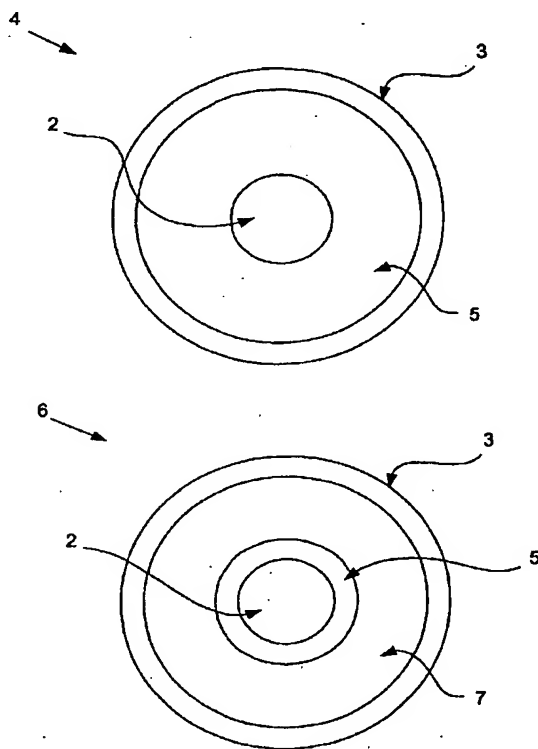
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

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[Continued on next page]

(54) Title: COMPOSITE QUANTUM DOT STRUCTURES



(57) Abstract: A composite quantum dot structure (4) comprises a charge carrier confinement region, such as a quantum dot (2), a barrier (5) and an electrically conductive layer (3). This structure allows the dimensions of the conductive layer (3) to be substantially independent of the size of the region (2), so that the dimensions of the region (2) can thus be selected in order to achieve desired optical properties, while the electrically conductive layer (3) can be of sufficient thickness to ensure that it can be reliably deposited. The structure may also include a cladding layer (7) (Figure 4) to compensate for any lack of chemical affinity between the barrier (5) and conductive layer (3). An ensemble of such structures be provided in which the quantum dots (1) have various radii but the dimensions of the conductive layers (3) and the overall dimensions of the structures are substantially uniform, e.g. for use in an amplifier configured to amplify light of various wavelengths.

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European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:  
27 October 2005

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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